What are biosolids, how are they used, and are they safe?

Biosolids are the nutrient-rich organic materials resulting from the treatment of domestic sewage in a wastewater treatment facility (i.e., treated sewage sludge). Biosolids are a beneficial resource, containing essential plant nutrients and organic matter and are recycled as a fertilizer and soil amendment.

Biosolids are created through the treatment of domestic wastewater generated from sewage treatment facilities. The treatment of biosolids can actually begin before the wastewater reaches the sewage treatment plant. In many large wastewater treatment systems, pre-treatment regulations require that industrial facilities pre-treat their wastewater to remove many hazardous contaminants before it is sent to a wastewater treatment plant. Wastewater treatment facilities monitor incoming wastewater streams to ensure their recyclability and compatibility with the treatment plant process.

Once the wastewater reaches the plant, the sewage goes through a biological process that cleans the wastewater and removes the solids. The excess biological solids are then digested or treated with lime to reduce or eliminate pathogens (disease-causing organisms, such as certain bacteria, viruses and parasites) and other organisms capable of transporting disease.

After treatment and processing, these residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth. Farmers and gardeners have been recycling biosolids for ages, reducing the need for chemical fertilizers. Biosolids are applied to promote the growth of agricultural crops, fertilize gardens and parks, and reclaim mining sites. When applied to crops, these plant nutrients are slowly released throughout the growing season enabling the crop to absorb these nutrients as the crops grow. This efficiency lessens the likelihood of groundwater pollution of nitrogen and phosphorus.

Biosolids are one of the most studied materials that have ever been regulated by the U.S. Environmental Protection Agency (USEPA). Decades of studies have demonstrated that biosolids can be safely used on food crops. The National Academy of Sciences has reviewed current practices, public health concerns, and regulator standards and has concluded that “the use of these materials in the production of crops for human consumption when practiced in accordance with existing federal guidelines and regulations, presents negligible risk to the consumer, to crop production, and to the environment.” Even though biosolids can be used safely on food crops, only a small percentage (much less than 1 percent) of the total food supply has been fertilized with biosolids. The vast majority of biosolids are applied on cropland that is used to grow grain crops for farm animal food.

For further information on the biosolids program, contact the DEQ, Water Bureau Biosolids Program Web site at www.michigan.gov/deqwater. In addition, you can contact the Environmental Assistance Center at 800-662-9278 or Email at deq-ead-env-assist@michigan.gov.